REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Rejection of Claims 1-7 and 9 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,917,695 (Teng) and 5,801,681 (Sayag)

The rejection set forth on pages 2-4 of the Official Action is believed to be a rejection of claims 1-7 and 9 as well as claims 1-3 in view of the Teng and Sayag patents, even though the header only mentions claims 1-3. The reason for this belief is that claims 4-7 and 9 are discussed on pages 3 and 4 without mention of any additional references, so it appears that the Teng and Sayag patents are the only references to be applied not only to claims 1-3, but also to claims 4-7 and 9.

The rejection is respectfully traversed on the grounds that the Teng and Sayag patents fail to disclose or suggest, whether considered individually or in any reasonable combination, the positively recited combination of:

- a **first convex lens** on which an object is placed;
- a light source for projecting light on the **first convex lens**; and
- a sensor and a **second convex lens** for focusing light on the sensor, such that the sensor detects ***movement of an object*** sliding on the first convex lens.

In particular, neither the Teng patent nor the Sayag patent discloses a lens corresponding to the claimed **convex** lens. Teng and Sayag disclose prisms and platens with flat surfaces, and **concave** lenses, but not **convex** lenses. They do not disclose convex lenses because the principles of operation of the devices disclosed in the Teng and Sayag patents differ from those of the claimed invention, and because neither Teng nor Sayag recognizes the advantages of combining a first convex lens on which an object is placed with a second convex lens, a light source, and a sensor in the manner claimed.

Initially, it is noted that the word "convex" means "*curved or rounded like the exterior of a sphere or circle.*" This definition is well-known to those skilled in the art, and is not met by any of the lens, prisms, or platens disclosed in the Teng and Sayag patents. Some advantages of a convex lens relative to prisms or platens (or concave lenses) of the type disclosed in the Teng and Sayag patents are discussed in lines 6-27 on page 2 of the present specification, which points out that: (a) the cost of a prism is relatively high, (b) detection of the object has to be controlled quite precisely, (c) when the object is moved away from the platen, false signals can result, and (d) the sensor much be position beyond a critical angle to avoid being affected by ambient light.

According to the Examiner, Fig. 15 of Teng shows a first convex lens, and a second convex lens between the first convex lens and the sensor. This interpretation of Fig. 15 of Teng is incorrect. Fig. 15 of Teng only shows a single convex lens 714. The first lens 710 on which an object is placed is **concave**. Under no reasonable definition or understanding of those skilled in the art could lens 710 of Teng possible be considered to be **convex**. If the Examiner wishes, the Applicant will submit textbook illustrations of concave or convex lenses, though such illustrations can readily be found on the Internet and are well-known to anyone familiar with standard lens terminology.

The Examiner also indicates that Fig. 1 of the Sayag patent shows a **convex** lens. However, the platen 102 of Sayag does not have any convex surfaces. All of the surfaces of platen 102 of Sayag are **flat**. A convex surface is a surface that curves outwardly like a sphere. It cannot be flat, or curved inwardly like a dimple.

The Teng patent not only fails to disclose a convex lens, but it also fails to disclose a device for detecting movement of an object, as claimed. Instead, it is directed to a device for capturing a high contrast image of a fingerprint. It differs from the claimed invention in that the finger of Teng must be ***stationary*** in order to capture a clean fingerprint image, and therefore there is no teaching that "*when the object slides over the first convex lens the sensor detects a*

new image position so as to generate a corresponding electronic signal for transmission to a computer system," as claimed.

The use of a concave lens or prism rather than a convex lens is necessary in the device of Teng, because Teng seeks to image the ridges and valleys of the fingerprint, and therefore requires that the light be incident on the finger surface at an oblique angle, which is contrary to the function of the claimed convex lens. In fact, Teng seeks to obtain "**total internal reflection**" (see, *e.g.*, the abstract of Teng) according to which light is projected through an entrance surface between the viewing surface 722 and the imaging surface 718, with the reflected light 730 propagating through the lens *without* even passing through viewing surface 722 (cols. 17-18). By projecting light is this manner, a higher contrast still image of the fingerprint can be obtained. This is essentially **impossible** to achieve using a convex lens.

Thus, Teng not only fails to teach the claimed movement of an object or convex lens, but could not have been modified to include the claimed convex lens without **changing the principle of operation** of the device because use of a convex lens would render operation of the Teng fingerprint sensor **unsatisfactory for its intended purpose**. As explained in **MPEP 2143.02** (page 2100-111):

> *If the proposed modification would render the prior art invention being modified **unsatisfactory for its intended purpose**, then there is no suggestion or motivation to make the proposed modification*" (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Also as stated in **MPEP 2143.02**:

> *If the proposed modification or combination of the prior art would **change the principle of operation of the prior art invention being modified**, then the teachings of the references are not sufficient to render the claims prima facie obvious* (citing In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)...*The court reversed the rejection holding the "suggested combination of references would require a **substantial reconstruction and redesign** of the elements shown in [the primary reference] **as well as a change in the basic principle under which the [primary reference] construction was designed to operate**" 123 USPQ at 352.* (See also, MPEP 2141.02, p. 2100-107 "**A prior art reference must be**

considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention (emphasis in the original).

It is respectfully submitted that substitution of a convex lens for the prism or concave lens of Teng would in fact change the principles of operation of Teng's fingerprint sensor, making it impossible to achieve total internal reflection for the purpose of obtaining a high contrast image of the finger print (as opposed to simply detecting movement of a finger).

The deficiencies of Teng are not remedied by the Sayag patent since, as mentioned above, the Sayag patent also does not disclose or suggest the claimed combination of a first **convex** lens on which an object is placed together with a second convex lens, light source, and sensor. The "lens" of Sayag, on which an object is placed, is an "*optically transmissive platen*" that does not have any convex surface.

Because neither the Teng patent nor the Sayag patent, whether considered individually or in any reasonable combination, discloses or suggests all elements of the claimed invention, and in particular a first convex lens on which an object is placed, in combination with a light source, sensor and second convex lens, withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

2. Rejection of Claims 1-7 and 9 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,917,695 (Teng) and 5,801,681 (Sayag)

This rejection is respectfully traversed on the grounds that the Huang publication, like the Teng and Sayag patents, fails to disclose or suggest a first **convex** lens on which an object is placed, in combination with a light source, sensor and second convex lens.

Instead, the Huang publication fails to disclose any lens on which an object is placed. Huang only discloses a convex lens that is spaced from the object being sensed, and that corresponds to the claimed "second convex lens" rather than the claimed first convex lens. Like Teng and Sayag, Huang does not disclose any element corresponding to the claimed "first convex

lens" on which an object is placed. Withdrawal of the rejection of claim 8 under 35 USC §103(a) is therefore respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

By: BENJAMIN E. URCIA
Registration No. 33,805

Date: February 6, 2006

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, Virginia 22314

Telephone: (703) 683-0500

NWB:S:\Producer\beu\Pending Q...Z\W\WANG 630696\a01.wpd